



DIVISION OF CORPORATION FINANCE  
MAIL STOP 7010

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

May 25, 2007

Mr. Scott W. Smith  
President and Chief Executive Officer  
Vanguard Natural Resources, LLC  
7700 San Felipe, Suite 485  
Houston, Texas 77063

**Re: Vanguard Natural Resources, LLC  
Registration Statement on Form S-1  
Filed April 25, 2007  
File No. 333-142363**

Dear Mr. Smith:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Engineering Comments

Registration Statement on Form S-1

General

1. Please provide your reserve report as of December 31, 2007 on electronic media.

Prospectus Summary, page 1

Vanguard Natural Resources, LLC, page 1

2. Please more fully disclose the reasons you believe that if Vineland only drills its minimum commitment of wells per year your production will decrease by

approximately two to three percent over the next four years and will then increase by approximately six percent in the fifth year.

3. Expand your disclosure about the Appalachian Basin to include the current average reserves and production per well on your properties.

Our Relationship with Vineland, page 3

4. Please expand your disclosure to include all management and operating fees you pay Vineland to operate your properties. Include their fee for the day to day operations of your wells, the fees you pay for drilling services that are beyond the actual drilling costs and any gas handling, processing and transportation costs you pay them.

Summary Reserves and Operating Data, page 16

5. Please correct, if necessary, the designation that crude oil is reported in millions of barrels as we believe you meant to report crude oil in thousands of barrels.
6. If material, please include the amount and percent of reserves that are classified as proved developed non-producing.

Risk Factors, page 18

Our hedging activities could result in financial losses or could reduce our income, page 29

7. Please expand your disclosure to indicate your hedging program may not allow you to benefit from increased revenues due to increases in natural gas prices.

Assumptions and Considerations, page 48

Operations and Revenue, page 48

8. We note your assumptions for the weighted average sales prices for natural gas sales. Due to the historical volatility of natural gas prices, we believe it would be beneficial to provide a sensitivity analysis of the forecasted prices. Please consider expanding your disclosure to include a sensitivity analysis.

Business, page 74

9. Please include all the information required by Item 102 of Regulation S-K. This should include the reserves, production and nature of your interest in all of your principal fields.

Natural Gas and Oil Data, page 80

Productive Wells and Developed and Undeveloped Acreage, pages 81 and 82

10. You indicate that 98.5% of your wells are operated by Vanguard. However, since they are actually operated by Vineland this does not appear to be an accurate representation. The same representation is presented for developed and undeveloped acreage. Please revise your document to more accurately reflect your operations.

Notes to Consolidated Financial Statements, page F-8

Supplemental Natural Gas and Oil Information, page F-22

11. You indicate that your reserve volumes for 2006 are based on reports by Netherland Sewell & Associates. However, the reserve report cover letter presented in Appendix C indicates materially lower reserves for 2006. Please revise to present consistent disclosure.
12. Please explain to us the large revision in oil and gas reserves in 2005.
13. Please expand your reserve disclosure to provide appropriate explanations for all significant changes in your reserves. See paragraph 11 of SFAS 69.
14. We note that you have not included any future taxes in the standardized measure presentation. Please revise your document to include these or tell us why it is not necessary.

Closing Comments

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

Please contact Sandra Eisen at (202) 551-3864 or, in her absence, April Sifford, Accounting Branch Chief, at (202) 551-3684 if you have questions regarding comments on the financial statements and related matters. Please contact James Murphy, Petroleum Engineer, at (202) 551-3703 if you have any questions regarding comments on the engineering matters. Please contact Jason Wynn at (202) 551-3756 or, in his absence, me at (202) 551-3611 with any other questions. Direct all correspondence to the following ZIP code: 20549-7010.

Sincerely,

Anne Nguyen Parker  
Branch Chief

Mr. Scott W. Smith  
Vanguard Natural Resources, LLC  
May 25, 2007  
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cc: S. Eisen  
A. Sifford  
J. Wynn  
J. Murphy

via facsimile

David P. Oelman and Douglas E. McWilliams  
Vinson & Elkins L.L.P.  
(713) 758-2346